

Amendment

In the drawings

✓ Please replace Figures 4 and 5 with the attached Figures 4 and 5.

In the Specification

Line 1 of the abstract, before "an", add --a method of increasing the holding voltage of --.

In the Claims

✓ Delete claims 7 and 8.

Amend claims 2, 3, 5 as shown.

Remarks

Drawings

Replacement Figures 4 and 5 have been included.

Specification

✓ The abstract has been amended to refer to a method. A replacement abstract is attached hereto.

Claim 8 has been deleted.

Claim Rejections - 35 USC 102

Claims 2, 3, 5, and 6 have been amended to specify that the alternative current path is a current path from the anode to the cathode of the LVTSCR-like structure. In other words, the claims have been amended to emphasize that the present invention distinguishes itself from Ham by the fact that it includes forward biased diode structures in the p-well.

This is in contrast to Ham, which provides reverse biased p-n junctions in the n-well and p-well. For instance, Ham includes a reverse biased junction between n+ region 52 and p+ region 50 in

the n-well, and reverse biased junction between n+ region 42 and p+ region 40 in the p-well. Furthermore, even though Ham speaks of diode current paths, Ham defines the diode current path as being between n+ and P-well (column 4, line 64), and between p+ and N-well (column 4, line 67), which again are reverse biased junctions. Thus the additional p-n junctions created in Ham are reverse biased. This configuration makes sense when one considers the purpose of Ham, which is to form discharge current paths in more than one direction, i.e., Ham seeks to provide a current path from cathode to anode (see Background of the Invention, column 2, lines 19-24, and Summary of the Invention, Column 2, lines 27-29).

The present invention, in contrast provides forward biased p-n junctions in the p-well. The claims have been amended to make this clear and thereby emphasize the differences between the present application and Ham.

Claims 7-8 have been deleted.

Thus all of the remaining claims are now distinguishable over Ham, and it is respectfully requested that the claims be permitted to proceed to allowance.

Version with markings to show changes made

2. (Once Amended) A method of increasing the holding voltage of a LVTSCR structure, comprising forming at least one additional (p-n junction) p-region and n-region inside a p-well of the structure to define a p-n junction that is forward biased during normal operation.
3. (Once Amended) A method of increasing the holding voltage of a LVTSCR-like structure having an anode and a cathode, comprising providing an alternative current path from anode to cathode through a p-well of the structure, other than purely the current path from anode to cathode through the p-material of the p-well.
5. (Once Amended) A method of claim 4, wherein the lower resistance current path takes the form of at least one p-n junction that is forward biased under normal operating conditions, formed in the p-well.

Respectfully Submitted,

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Abstract

A3 In a method of increasing the holding voltage of an ESD protection device making use of a LVTSCR structure, the holding voltage is increased by forming diodes in the p-well of the LVTSCR structure. This provides an alternative current path at high currents and provides a defined voltage drop thereby increasing the holding voltage.
